

**Practice: 666 - Forest Stand Improvement****Scenario: #1 - Single stem - Hand tools****Scenario Description:**

Adjust species composition and/or density of a stand of trees to meet objectives. The operation is supervised and carried out using hand tools such as chainsaws, weed eaters with saw blades, or machetes. Species that do NOT sprout are targeted (i.e. cedar and pine). This scenario is NOT appropriate to target species that sprout. Resource concerns can include: Forage Quality and Palatability, Noxious and Invasive Plants, Plants not adapted or suited, Productivity, Health and Vigor, Wildfire Hazard, Inadequate Cover/Shelter, Inadequate Quantities and Quality of Feed and Forage, Excessive Greenhouse Gas - CO<sub>2</sub> (carbon dioxide), or Classic Gully.

**Before Situation:**

The density and/or species composition of a stand of trees is inconsistent with desired objectives. The stand could have poor health and vigor because of overstocking or undesirable species to be compatible with objectives for timber, wildlife, or aesthetics.

**After Situation:**

Density and/or species composition of the stand is consistent with desired objectives. Stand will have good health and vigor with desirable species.

**Scenario Feature Measure:** Area treated

**Scenario Unit:** Acre

**Scenario Typical Size:** 40

**Scenario Cost:** \$8,158.80

**Scenario Cost/Unit:** \$203.97

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Chainsaw	937	Equipment and power unit costs. Labor not included.	Hour	\$6.15	200	\$1,230.00
<b>Labor</b>						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$18.46	200	\$3,692.00
Specialist Labor	235	Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services.	Hour	\$80.92	40	\$3,236.80

**Practice: 666 - Forest Stand Improvement****Scenario: #2 - Single Stem - Chemical****Scenario Description:**

Adjust species composition and/or density of a stand of trees to meet objectives. The operation is carried out using hand tools with chemical treatment such as cut stump treatment, hack and squirt, basal spray, or back pack spray. Species that sprout are targeted (i.e. oak, hickory, elm, etc.). This scenario is NOT appropriate to target species that DO NOT sprout. Resource concerns can include: Forage Quality and Palatability, Noxious and Invasive Plants, Plants not adapted or suited, Productivity, Health and Vigor, Wildfire Hazard, Inadequate Cover/Shelter, Inadequate Quantities and Quality of Feed and Forage, Excessive Greenhouse Gas - CO2 (carbon dioxide), or Classic Gully.

**Before Situation:**

The existing condition of the stand cannot meet the landowners objectives because the composition consists of unwanted species and the stocking exceeds the recommended level.

**After Situation:**

The composition of the stand can meet the landowners objectives and the growth, condition and quality of the remaining trees are improved.

**Scenario Feature Measure:** Acres treated

**Scenario Unit:** Acres

**Scenario Typical Size:** 40

**Scenario Cost:** \$6,085.52

**Scenario Cost/Unit:** \$152.14

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Chemical, spot treatment, single stem application	964	Ground applied chemical to individual plants or group of plants, e.g., backpack sprayer treatment. Equipment and labor cost included.	Hour	\$55.32	96	\$5,310.72
<b>Labor</b>						
Specialist Labor	235	Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services.	Hour	\$80.92		\$0.00
<b>Materials</b>						
Herbicide, Picloram	337	Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$19.37	40	\$774.80

**Practice: 666 - Forest Stand Improvement****Scenario: #3 - Chemical-Ground-Light Equipment****Scenario Description:**

Using ground applied herbicides to release young desirable trees from competing and/or overtopping vegetation using ground-based machinery (typical farm equipment). Typical sites include abandoned fields, pastures, or agricultural fields. Resource concerns can include: Forage Quality and Palatability, Noxious and Invasive Plants, Plants not adapted or suited, Productivity, Health and Vigor, Wildfire Hazard, Inadequate Cover/Shelter, Inadequate Quantities and Quality of Feed and Forage, Excessive Greenhouse Gas - CO<sub>2</sub> (carbon dioxide), or Classic Gully.

**Before Situation:**

An adequately stocked stand of desirable species is not meeting objective due to undesirable vegetation. If left uncontrolled, undesirable vegetation will inhibit desired species. Noxious and invasive species may also be present on the site. Application of herbicides will be by ground equipment as an over-the-top spray.

**After Situation:**

The released stand of trees contains the composition and quality needed to meet the landowner's objectives and address the resource concerns.

**Scenario Feature Measure:** Acres treated

**Scenario Unit:** Acre

**Scenario Typical Size:** 40

**Scenario Cost:** \$2,426.82

**Scenario Cost/Unit:** \$60.67

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Chemical, ground application	948	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$5.67	40	\$226.80
<b>Labor</b>						
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$35.54	6	\$213.24
<b>Materials</b>						
Herbicide, Imazapyr	336	Pre and post-emergent, non-selective herbicide for control of undesirable vegetation in non-crop areas. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$42.03	40	\$1,681.20
Herbicide, Surfactant	1095	Surfactants reduce the surface tension of water to produce more uniform coverage and penetration of herbicides, and weed killers. Paraffin Based Petroleum Surfactant. Refer to WIN-PST for product names and active ingredients. Includes materials and shi	Acre	\$1.34	40	\$53.60
<b>Mobilization</b>						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$251.98	1	\$251.98

**Practice: 666 - Forest Stand Improvement****Scenario: #4 - Chemical-Ground-Heavy Equipment****Scenario Description:**

Using ground applied herbicides to release young desirable trees from competing and/or overtopping vegetation using ground-based machinery (dozers or skidders and NOT typical farm equipment). Typical sites include forestland with terrain too rough and uneven or vegetation too big or thick to be sprayed with normal farm equipment. Resource concerns can include: Forage Quality and Palatability, Noxious and Invasive Plants, Plants not adapted or suited, Productivity, Health and Vigor, Wildfire Hazard, Inadequate Cover/Shelter, Inadequate Quantities and Quality of Feed and Forage, Excessive Greenhouse Gas - CO<sub>2</sub> (carbon dioxide), or Classic Gully.

**Before Situation:**

An adequately stocked stand of desirable species is not meeting objective due to undesirable vegetation. If left uncontrolled, undesirable vegetation will inhibit desired species. Noxious and invasive species may also be present on the site. Application of herbicides will be by ground equipment as an over-the-top spray.

**After Situation:**

The released stand of trees contains the composition and quality needed to meet the landowner's objectives and address the resource concerns.

**Scenario Feature Measure:** Acres treated

**Scenario Unit:** Acre

**Scenario Typical Size:** 40

**Scenario Cost:** \$6,793.82

**Scenario Cost/Unit:** \$169.85

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Chemical, ground application, wildland	1313	Chemical application performed by ground equipment. Includes forestry application methods that include heavy equipment such as skidders. Includes material, equipment, power unit and labor costs.	Acre	\$107.34	40	\$4,293.60
Log skidder	942	Equipment and power unit costs. Labor not included.	Hour	\$125.52		\$0.00
<b>Labor</b>						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$18.46		\$0.00
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$23.09		\$0.00
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$35.54	8	\$284.32
<b>Materials</b>						
Herbicide, Surfactant	1095	Surfactants reduce the surface tension of water to produce more uniform coverage and penetration of herbicides, and weed killers. Paraffin Based Petroleum Surfactant. Refer to WIN-PST for product names and active ingredients. Includes materials and shi	Acre	\$1.34	40	\$53.60
Herbicide, Imazapyr	336	Pre and post-emergent, non-selective herbicide for control of undesirable vegetation in non-crop areas. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$42.03	40	\$1,681.20
<b>Mobilization</b>						
Mobilization, large equipment	1140	Equipment >150HP or typical weights greater than 30,000 pounds or loads requiring over width or over length permits.	Each	\$481.10	1	\$481.10

**Practice: 666 - Forest Stand Improvement****Scenario: #5 - Chemical, Aerial****Scenario Description:**

Using aerially applied chemicals to release desirable trees from competing and/or overtopping vegetation. Resource concerns can include: Forage Quality and Palatability, Noxious and Invasive Plants, Plants not adapted or suited, Productivity, Health and Vigor, Wildfire Hazard, Inadequate Cover/Shelter, Inadequate Quantities and Quality of Feed and Forage, Excessive Greenhouse Gas - CO<sub>2</sub> (carbon dioxide), or Classic Gully.

**Before Situation:**

An adequately stocked stand of desirable species and trees is not growing to its potential for the site due to severe competition from undesirable trees and brush. Releasing the desirable trees from the competition will be achieved through the application of appropriate herbicides according to label directions. Application will be by helicopter as an over-the-top spray. The work will be professionally planned and supervised.

**After Situation:**

The released stand of trees contains the composition and quality needed to meet the landowner's objectives and address the resource concerns.

**Scenario Feature Measure:** Area treated

**Scenario Unit:** Acre

**Scenario Typical Size:** 40

**Scenario Cost:** \$3,558.80

**Scenario Cost/Unit:** \$88.97

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Chemical, aerial application, helicopter	1991	Chemical application performed by helicopter on forest only. Includes equipment, mobilization, and labor.	Acre	\$29.77	40	\$1,190.80
<b>Labor</b>						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$18.46		\$0.00
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$35.54		\$0.00
<b>Materials</b>						
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$15.83	40	\$633.20
Herbicide, Imazapyr	336	Pre and post-emergent, non-selective herbicide for control of undesirable vegetation in non-crop areas. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$42.03	40	\$1,681.20
Herbicide, Surfactant	1095	Surfactants reduce the surface tension of water to produce more uniform coverage and penetration of herbicides, and weed killers. Paraffin Based Petroleum Surfactant. Refer to WIN-PST for product names and active ingredients. Includes materials and shi	Acre	\$1.34	40	\$53.60

**Practice: 666 - Forest Stand Improvement****Scenario: #6 - Mechanical, Light Equipment****Scenario Description:**

Using light equipment (typically tractors used in normal farming operations) to control undesirable vegetation (disk or bush hog) competing with desirable species. Resource concerns can include: Forage Quality and Palatability, Noxious and Invasive Plants, Plants not adapted or suited, Productivity, Health and Vigor, Wildfire Hazard, Inadequate Cover/Shelter, Inadequate Quantities and Quality of Feed and Forage, Excessive Greenhouse Gas - CO<sub>2</sub> (carbon dioxide), or Classic Gully.

**Before Situation:**

A stand of young, desirable trees is adversely affected by competition either from undesirable species or because the stand is overstocked. The vegetation to be controlled is small enough that it can be mowed or shredded. The work can be done by mowing or shredding strips through the stand, mowing between planted rows, etc.

**After Situation:**

After adjusting the stocking to an acceptable level and/or controlling the competing vegetation, stand growth, condition, and overall quality is improved. In addition, wildlife habitat is improved with the resulting increase of sunlight reaching the forest floor.

**Scenario Feature Measure:** Area Treated**Scenario Unit:** Acre**Scenario Typical Size:** 40**Scenario Cost:** \$2,436.30**Scenario Cost/Unit:** \$60.91**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Mower, Bush Hog	940	Equipment and power unit costs. Labor not included.	Hour	\$49.64	32	\$1,588.48
<b>Labor</b>						
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$18.62	32	\$595.84
<b>Mobilization</b>						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$251.98	1	\$251.98

**Practice: 666 - Forest Stand Improvement****Scenario: #7 - Mechanical, Medium Equipment****Scenario Description:**

Using medium equipment (usually hydroax & not typical farming equipment) to control undesirable competing vegetation that is competing with desirable species or to reduce the stocking level of a stand of desirable trees too big to be mowed with a bush hog. Resource concerns can include: Forage Quality and Palatability, Noxious and Invasive Plants, Plants not adapted or suited, Productivity, Health and Vigor, Wildfire Hazard, Inadequate Cover/Shelter, Inadequate Quantities and Quality of Feed and Forage, Excessive Greenhouse Gas - CO<sub>2</sub> (carbon dioxide), or Classic Gully.

**Before Situation:**

A stand of desirable trees is adversely affected by competition either from undesirable species, cull trees, or because the stand is overstocked. The vegetation to be controlled is too large to be mowed.

**After Situation:**

The released stand of trees contains the composition and quality needed to meet the landowner's objectives and address the resource concerns.

**Scenario Feature Measure:** Area treated

**Scenario Unit:** Acre

**Scenario Typical Size:** 40

**Scenario Cost:** \$6,073.78

**Scenario Cost/Unit:** \$151.84

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Truck, Pickup	939	Equipment and power unit costs. Labor not included.	Hour	\$36.33	20	\$726.60
Brush Chipper, 6" capacity	938	Brush Chipper, 6" capacity, typically 35 HP. Includes chipper and power unit. Labor not included.	Hour	\$21.60	80	\$1,728.00
<b>Labor</b>						
Specialist Labor	235	Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services.	Hour	\$80.92	10	\$809.20
Supervisor or Manager	234	Labor involving supervision or management activities. Includes crew supervisors, foremen and farm/ranch managers time required for adopting new technology, etc.	Hour	\$35.54	20	\$710.80
Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$23.09	80	\$1,847.20
<b>Mobilization</b>						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$251.98	1	\$251.98

**Practice: 666 - Forest Stand Improvement****Scenario: #8 - Mechanical, Heavy Equipment****Scenario Description:**

Using heavy equipment (usually bull dozers, masticator, or mulcher & not typical farming equipment) to control undesirable competing vegetation that is competing with desirable species or to reduce the stocking level of a stand of desirable trees too big to be mowed. Resource concerns can include: Forage Quality and Palatability, Noxious and Invasive Plants, Plants not adapted or suited, Productivity, Health and Vigor, Wildfire Hazard, Inadequate Cover/Shelter, Inadequate Quantities and Quality of Feed and Forage, Excessive Greenhouse Gas - CO2 (carbon dioxide), or Classic Gully.

**Before Situation:**

A stand of desirable trees is adversely affected by competition either from undesirable species, cull trees, or because the stand is overstocked. The vegetation to be controlled is too large to be mowed or shredded. Therefore other mechanical methods such as using masticators or mulchers is necessary.

**After Situation:**

The released stand of trees contains the composition and quality needed to meet the landowner's objectives and address the resource concerns.

**Scenario Feature Measure:** Area treated

**Scenario Unit:** Acre

**Scenario Typical Size:** 40

**Scenario Cost:** \$17,402.10

**Scenario Cost/Unit:** \$435.05

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
	1146				2	
<b>Equipment/Installation</b>						
Mechanical cutter, chopper	943	Masticator, flail shredder, hydro axe, brush cutter, etc. Equipment and power unit costs. Labor not included.	Hour	\$125.52	110	\$13,807.20
<b>Labor</b>						
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$18.62	110	\$2,048.20
Specialist Labor	235	Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services.	Hour	\$80.92	16	\$1,294.72
<b>Mobilization</b>						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$251.98	1	\$251.98